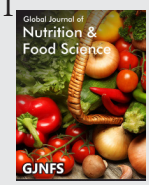

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Review Article

The Nutritional Value of Fruits And Vegetables

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Abstract

Fruits and vegetables are horticultural products used in food. Most fruits and vegetables have food value, being eaten both raw and canned. Fruits and vegetables are rich in carbohydrates, minerals and vitamins with low molecular weight, dyes (phytonutrients with an antioxidant role such as beta-carotene, lutein, zeaxanthin and lycopene). Vegetables and fruits are widely consumed foods of vegetable origin, with an important role in nutrition due to their special sensory properties and the precious nutritional elements they contain: carbohydrates, enzymes, organic acids, vitamins and mineral salts.

Keywords: Fruits; Vegetables; Nutritional value

Background

Throughout the history of humanity, vegetables and fruits have encompassed basic elements in nutrition, due to their content in proteins, lipids and carbohydrates, in minerals such as potassium, sodium or magnesium, etc., their consumption throughout the year brings numerous health benefits [1]. The pedoclimatic and relief conditions have made a wide range of vegetables and fruits of great importance, grouped in more than 15 botanical families, to be cultivated on this territory [2]. But these products are seasonal, the harvest periods are relatively short. For most of them the perishability is very high or average, which makes their fresh use possible only after demanding storages, which increase their considerable costs [3]. They are foods of vegetable origin with an important role in nutrition due to their special taste and aroma, providing the body with precious nutritional elements. A characteristic of the vegetables and fruits consists in the fact that most of them can be used in food in a fresh state. The disadvantage of groups consists in the fact that they are products low in protein and have a low energy value [4]. In addition to food, they are also used in therapeutics, preventive medicine and cosmetics. From these plants, the most frequently used organs are the fruits, seeds, leaves, buds, inflorescences, stems, tuberous roots, etc. In the case of apples, pears, quinces, peaches, plums, cherries, raspberries, strawberries, peas, tomatoes, peppers, eggplants, cucumbers, etc., the organ used for consumption is a fruit [5].

Quality is a complex notion that includes both the properties of the product to satisfy a certain need, as well as the economic aspects related to the creation and use of the product [6]. The quality of the products is conceived in the research-design phase, realized in the production process and manifested in the consumption process, which derives another inseparable notion: the quality of the production. The quality of a product is determined by the set of its useful characteristics that can be observed, measured or compared with a standard. The characteristics of the products are numerous, but only some of them determine, at a given moment, the quality [7].

Vegetables and fruits are characterized by:

- Rich water content (85-95% for vegetables, 80-90% for fruits);
- Carbohydrates 2-7% for vegetables, 6-12% for fruits;
- Mineral substances 0.5-5 gr. % for vegetables, 0.2-0.5% for fruits;
- Vitamins 5-40 mg % for vegetables, 5-65 mg % for fruits;
- Small amounts of proteins and lipids [8].

Physical characteristics:

- Specific weight;
- Volumetric weight (weight in kg);

specific heat (the amount of heat or cold needed to raise or lower the temperature of vegetables or fruits);

freezing temperature (negative temperature point at which free water turns into a solid state) [9]. Fruits and vegetables have many benefits for human health, they are in themselves "miracle foods" because they all contain carbohydrates, fats, proteins and a series of vitamins, minerals, cellulose and a very large amount of water, all of which have a role in human nutrition and health. The processes from production to harvesting and reaching the consumer are very important for fruits and vegetables. Fruits and vegetables that go through different stages must not lose their nutritional values, they must be kept in healthy and hygienic conditions for them [10]. Chemical treatments applied to fruits and vegetables before, during and after obtaining the finished product to increase yields and to protect them from other pests or harmful insects during the growing period, affect the health of people who consume this class of products and products derived from them, if they are used abusively, in quantities that exceed the limits imposed by law. For this reason, sensory, physical, chemical and microbiological tests and analyses of fruits and vegetables are essential for ensuring product safety and consumer health [11]. Complete analyses, in accordance with the legislation in force, for fruits or vegetables and their products consist of:

- Nutritional information: Fatty acids (omega 3, omega 6, monounsaturated, polyunsaturated, saturated, trans), calcium, soluble, insoluble and total dietary fiber, phosphorus, total carbohydrates / available carbohydrates, lipids, magnesium, potassium, proteins, sodium, value energy, total sugar, etc.
- Organoleptic: appearance, caliber, shape and size, color, consistency, taste and smell, infestation, etc.
- General physico-chemical: pH, sorbic acid, acidity (free, total, volatile), water activity, starch, easily hydrolyzable nitrogen, ash insoluble in HCl, sodium chloride, alcohol concentration, total vegetable/fruit content in relation to the mass net, sulfur dioxide, fructose, glucose, mineral impurities, sweeteners, net mass, nitrites and nitrates, polyphosphates, Kreis reaction, antibiotic residues, sugar, volume in packaging, etc. [12]
- Microbiological: bacillus cereus, mesophilic aerobic bacteria, mesophilic anaerobic bacteria, sulfite-reducing anaerobic bacteria, thermophilic anaerobic bacteria, thermophilic anaerobic bacteria, coliform bacteria, mesophilic lactic bacteria, thermophilic fermentation bacteria, yeasts and molds, enterobacteriaceae, escherichia coli, leuconostoc mesenteroides, listeria monocytogenes, total number of germs, salmonella, etc. (which show acceptable values or should be missing).
- Metals and non-metals: aluminum, arsenic, mercury, cadmium, chromium, copper, iron, manganese, nickel, lead, selenium, tin, zinc. (Which show acceptable values or should be missing).
- Mycotoxins and allergens: aflatoxins B1 and total, deoxynivalenol, ochratoxin A, zearalenone, patulin, gluten, lactose, soy, peanut, gliadin, milk, egg, sesame, celery, etc. [13]
- Pesticides: Organochlorine pesticides (aldrin, total DDT, decachloro-biphenyl, endosulfan, endosulfan sulfate, endrin aldehyde and ketone, heptachlor, heptachlorepoxide, methoxychlor, tetrachloro-m-xylene, α-chlordane and HCH, β-chlordane and HCH, γ -chlordane), pesticides, residues of tetracyclines and their metabolites, etc. (which show acceptable values or should be missing) [14].

A peculiarity of vegetables and fruits resides in the fact that most of them can be used by humans for food in a fresh state as such, as well as in various culinary preparations or in canned form. The importance of the consumption of vegetables and fruits is fulfilled by their participation in a significant proportion in the conception of the recipes of culinary preparations and semi-prepared dishes: we can say that there is no menu in which vegetables and fruits do not intervene in a proportion, sometimes quite high. Another direction of the importance of vegetables and fruits refers to their therapeutic use, as adjuncts to drug treatment and in preventive medicine. Diets rich in vegetables and fruits help reduce the risk of many chronic health conditions that are leading causes of death, including cardiovascular disease and cancer.

Conclusions and Remarks

Fruits and vegetables have an important role in the diet. Although Maslow's pyramid places them towards the top of nutritional needs, our priorities and lifestyle have changed. And fruits and vegetables have low energetic density, and are easy to digest and absorb. So I do not agree they are efficient and energizing. They should occupy a larger portion nowadays than before because we do not need as many calories as before and we do not need that much food with high energy density or calory density. And they also provide food diversity for us. So, Maslow's pyramid changes, and fruits and vegetables take their rightful place. Thus, the importance of fruits in nutrition has changed in recent years, fruits becoming a resource in the nutrition of the future.

Acknowledgement

None.

Conflict of Interest

None.

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